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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,633	04/15/2004	Gary Dilling	446-011602-US (PAR)	9000

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EXAMINER	
SHARP, JEFFREY ANDREW	
ART UNIT	PAPER NUMBER
3677	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/825,633	DILLING, GARY	
	Examiner	Art Unit	
	Jeffrey Sharp	3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4,5 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,4,5 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

[1] This action is responsive to Applicant's request for continued examination filed on 02 November 2006 with regard to the advisory Office action mailed on 12 October 2006.

Status of Claims

[2] Claims 2, 4, 5, and 11 are pending.

Drawings

[3] The drawing(s) were previously objected for informalities. In view of Applicant's replacement drawings submitted on 02 October 2006, all previous objection(s) to the drawings have been withdrawn. Accordingly, the changes have been entered. It appears that no new matter has been entered.

Specification

[4] The disclosure was previously objected to for informalities. Applicant has successfully addressed these issues in the amendment filed on 02 October 2006. Accordingly, the objection(s) to the specification has been withdrawn.

Response to Arguments/Remarks

[5] Applicant's arguments/remarks have been fully considered, but are moot in view of the following new grounds of rejection necessitated by amendment.

New Grounds of Rejection

Claim Rejections - 35 USC § 102

[6] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

[7] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

[8] Claims 4, 5, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US-7,077,038 to Toyooka et al. in view of Lee US-5,598,753.

In short, Toyooka et al. (figure 8) teaches a fastener comprising shank, and a recess in and end of the shank, said recess having a plurality of outwardly extending wings (13) and transition surfaces (14) between said wings at the radially innermost portion of said wings, the transition surfaces forming an interference contour extending radially inward towards a central

portion in such a way that it tapers from a first larger radial distance to a smaller radial distance a bottom portion of the recess, wherein the recess is configured to form an interference fit with a driver (not claimed, so this limitation has not been given significant patentable weight as being directed towards an intended use of the fastener).

However, Toyooka et al. fails to disclose expressly, at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent.

Lee suggests at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent, in order to provide a security/anti-theft feature.

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art, to modify the recess taught by Toyooka et al., so that at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent as suggested by Lee, in order to provide a security/anti-theft/tamperproof feature.

[9] Claims 4, 5, and 11 are further rejected under 35 U.S.C. 103(a) as being unpatentable over US-RE23,878 to Smith et al. in view of Lee US-5,598,753.

In short, Smith et al. (figure 4) teaches a fastener comprising shank, and a recess in and end of the shank, said recess having a plurality of outwardly extending wings (13) and transition surfaces (25) between said wings at the radially innermost portion of said wings, the transition surfaces forming an interference contour extending radially inward towards a central portion in such a way that it tapers from a first larger radial distance to a smaller radial distance a bottom portion of the recess, wherein the recess is configured to form an interference fit with a driver (driver not claimed, so this limitation has not been given significant patentable weight as being

directed towards an intended use of the fastener). The transition surfaces are used to help prevent "rock out".

However, Smith et al. fails to disclose expressly, at least one of the installation or removal walls (15,16) of each wing (14) defining a segment of a spiral over its extent.

Lee suggests at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent, in order to provide a security/anti-theft feature.

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art, to modify the recess taught by Smith et al., so that at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent as suggested by Lee, in order to provide a security/anti-theft/tamperproof feature.

[10] Claims 2, 4, 5, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US-RE23,878 to Smith et al. in view of Stacy US-5,957,645.

In short, Smith et al. (figures 1 and 4) teaches a fastener comprising shank, and a recess in and end of the shank, said recess having a plurality of outwardly extending wings (13) and transition surfaces (25) between said wings at the radially innermost portion of said wings, the transition surfaces forming an interference contour extending radially inward towards a central portion in such a way that it tapers from a first larger radial distance to a smaller radial distance a bottom portion of the recess, wherein the recess is configured to form an interference fit with a driver (driver not claimed, so this limitation has not been given significant patentable weight as being directed towards an intended use of the fastener). The transition surfaces are used to help prevent "rock out". While Smith et al. broadly disclose that walls 17 and 18 (which may

alternatively be a single transition surface 25 shown in figure 4) "hav[e] a slight vertical upward flare...[a] particular characteristic or arrangement [which] is not critical, the presence or absence of slight amounts of vertical taper in the walls of the grooves, or of the central portion of the screw recess, depending on the design of the header punch used in producing the recess, the composition and temper of the metal stock of which the screw or other fastener is formed and other factors not necessary to detail", Smith et al fail to disclose the taper to be 0.5 to 2 degrees.

Smith et al. also fail to disclose expressly, at least one of the installation or removal walls (15,16) of each wing defining a segment of a spiral over its extent.

Stacy suggests at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent, in order to "maximize torque transmission while spreading the driving load over a broad driver fastener interface to reduce the risk of development of high stress regions". Stacy suggests in column 9 lines 29-31 that transitions of the installation and removal surfaces on the recess wings may be formed in an arcuate contour. Stacy also suggests in column 5 lines 16-20 that "surfaces of the recess, may be formed to include some positive draft, that is, they may diverge slightly in a direction from the bottom to the top of the recess. By way of example, a positive draft of up to about 6 degrees should not adversely affect the torque transmission capability of the system for many applications."

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art, to modify the recess taught by Smith et al., so that at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent as suggested by Stacy, in order to "maximize torque transmission while spreading the driving load over a broad driver fastener interface to reduce the risk of development of high stress regions".

It would have further been obvious in view of Stacy, to modify the tapered transition surfaces (25) taught by Smith et al., to have a positive draft angle of up between 0.5 and 2 degrees, because Stacy discloses that "surfaces of the recess, may be formed to include some positive draft, that is, they may diverge slightly in a direction from the bottom to the top of the recess. By way of example, a positive draft of up to about 6 degrees should not adversely affect the torque transmission capability of the system for many applications." One of ordinary skill in the art would appreciate that draft angles are an inherent result of forming (as disclosed above by Smith et al.), or advantageous to provide to aide in forming (e.g., punches).

[11] Claims 2 and 11 are further rejected under 35 U.S.C. 103(a) as being unpatentable over US-7,077,038 to Toyooka et al. in view of Stacy US-5,957,645.

In short, Toyooka et al. (figure 8) teaches a fastener comprising shank, and a recess in and end of the shank, said recess having a plurality of outwardly extending wings (13) and transition surfaces (14) between said wings at the radially innermost portion of said wings, the transition surfaces forming an interference contour extending radially inward towards a central portion in such a way that it tapers from a first larger radial distance to a smaller radial distance a bottom portion of the recess, wherein the recess is configured to form an interference fit with a driver (not claimed, so this limitation has not been given significant patentable weight as being directed towards an intended use of the fastener).

However, Toyooka et al. fails to disclose expressly, at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent, and does not expressly disclose the taper angle of transition surfaces (14) to be between 0.5 and 2 degrees.

Stacy suggests at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent, in order to "maximize torque transmission while spreading the driving load over a broad driver fastener interface to reduce the risk of development of high stress regions". Stacy suggests in column 9 lines 29-31 that transitions of the installation and removal surfaces on the recess wings may be formed in an arcuate contour. Stacy also suggests in column 5 lines 16-20 that "surfaces of the recess, may be formed to include some positive draft, that is, they may diverge slightly in a direction from the bottom to the top of the recess. By way of example, a positive draft of up to about 6 degrees should not adversely affect the torque transmission capability of the system for many applications."

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art, to modify the recess taught by Toyooka et al., so that at least one of the installation or removal walls of each wing defining a segment of a spiral over its extent as suggested by Stacy, in order to "maximize torque transmission while spreading the driving load over a broad driver fastener interface to reduce the risk of development of high stress regions".

It would have further been obvious in view of Stacy, to modify the tapered transition surfaces (14) taught by Toyooka et al., to have a positive draft angle of up between 0.5 and 2 degrees, because Stacy discloses that "surfaces of the recess, may be formed to include some positive draft, that is, they may diverge slightly in a direction from the bottom to the top of the recess. By way of example, a positive draft of up to about 6 degrees should not adversely affect the torque transmission capability of the system for many applications." One of ordinary skill in the art would appreciate that draft angles are an inherent result of forming (as disclosed above by

Smith et al.), or advantageous to provide to aide in forming (e.g., punches). Some positive draft allows for easy removal of the punch or die.

Conclusion

[12] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows:

[13] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (571) 272-7074. The examiner can normally be reached 7:00 am - 5:30 pm Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS

1/18/07

ROBERT J. SANDY
PRIMARY EXAMINER